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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/751,649

12/29/2000

Ashok Singhal

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07/24/2006

PATENT LAW GROUP LLP  
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SAN JOSE, CA 95134

EXAMINER

NGUYEN, STEVE N

ART UNIT

PAPER NUMBER

2138

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/751,649

Applicant(s)

SINGHAL ET AL.

Examiner

Steve Nguyen

Art Unit

2138

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 10-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 10-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-6 and 10-13 are currently pending.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-3 and 10-13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claim 1 objected to because of the following informalities: the third limitation of claim 1 should read, "when a new data is written into the entire line of memory".

Appropriate correction is required.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 12 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,973,484.

Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are directed to writing data into a line of memory and mirroring the new data merged with existing data to other nodes in a communication system.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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5. Claims 1-3, 10, and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Steely, Jr. et al (US Pat. 6,049,889; hereafter referred to as Steely) in view of Grivna (US Pat. 5,850,556) in view of Liepa et al (US Pat. 4,520,439; hereinafter referred to as Liepa).

Note: Gillett et al is brought in as a teaching reference to further clarify what is taught by Steely.

As per claim 1:

Steely teaches a communication link protocol for communicating between nodes of an interconnect system via a communication link, the communication link protocol comprising:

- a direct memory access (DMA) command for performing an inter-node DMA transfer of a block of data from a local node to a remote node via one of the communication links (see col. 7, lines 26-32. Steely further teaches a Memory Channel network and PCI Memory Channel adapters in col. 3, lines 22-29. Gillett in an analogous art teaches on page 246, right column, that a memory channel adapter connected to a PCI bus appears as a very high-speed DMA device for messages received from the network. Therefore, an inter-node DMA transfer is being performed as far as the remote node is concerned);
- an administrative write command for writing data from a local node to registers in a remote node via the communication link for administrative purposes (col. 5, lines 36-45);

- a memory copy write command for writing an entire line of memory from a local node to a remote node via one of the communication links when a new data is written into the line of memory (col. 6, lines 46-47; col. 7, lines 13-15).

Not explicitly disclosed by Steely is writing an entire line of memory from a local node to a remote node via one of the communication links even when the new data is smaller than the line of memory. However, Liepa in an analogous art teaches a method for partially writing data to a memory word ranging from one bit to the length of word (col. 2, lines 47-50) wherein the new data (col. 7, line 67 to col. 8, line 2; Fig. 2, element 76) is merged with existing data (col. 8, lines 14-17; Fig. 2, elements 82 and 84 are masked existing data), and the entire memory word consisting of the merged data is written (Fig. 2, element 56). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Liepa with the system of Steely. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that doing so would have provided the flexibility of being able to use the system of Steely with any size memory word (col. 4, lines 57-65).

Also not explicitly disclosed by Steely or Liepa is a built in self test (BIST) command for testing the functionality of the communication link. However, Grivna teaches a communication system which uses a BIST testing logic for testing the functionality of the communication link (col. 6, lines 52-56). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine a BIST testing architecture as described by Grivna with the system of Steely to issue a BIST

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command for testing the functionality of the communication link. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that BIST would have provided the advantage of allowing diagnostics of the communication link, as described by Grivna in column 6, lines 52-56.

As per claim 2:

Steely further teaches the communication link protocol of Claim 1 wherein each command is conveyed between a local node and a remote node in the form of a respective command packet (col. 9, lines 8-9).

As per claim 3:

Steely further teaches the communication link protocol of Claim 2 wherein each respective command packet carries information for at least one command flag (col. 9, lines 18-23; the DV bits are a command flag that dictate the occurrence of an idle cycle).

As per claim 10:

Steely further teaches the communication link protocol of Claim 1, wherein said performing an inter-node DMA transfer of a block of data from a local node to a remote node comprises copying the block of data from a local memory of the local node to a remote memory of the remote node (col. 8, lines 41-43).

As per claim 12:

Liepa further teaches the communication link protocol of Claim 1, wherein said writing a line of memory from a local node to a remote node comprises reading existing

data from the line of memory in a local memory of the local node, merging new data with the existing data, and writing merged data to a corresponding line of memory in a remote memory of the remote node (see rejection of claim 1 above).

6. Claim 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Steely in view of Grivna in view of Liepa as applied to claim 1 above, and further in view of Gunsaulus et al (US Pat. 5,914,970; hereinafter referred to as Gunsualus).

As per claim 11:

Steely, Grivna, and Liepa teach the communication link protocol of claim 1 above. Not explicitly disclosed is said writing a block of data from a local node to a remote node comprises computing parity over multiple blocks of data from a local memory of the local node and writing the parity to a remote memory of the remote node. However, Gunsaulus in an analogous art teaches computing parity for a number of memory devices and writing the parity in one dedicated memory device (col. 1, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to compute parity over multiple blocks of data and write the parity to a remote memory of the remote node. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that using one memory device for parity storage reduces the number of memory devices needed for storing parity, as disclosed by Gunsaulus in col. 1, lines 52-55.



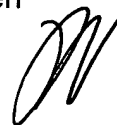
**Conclusion**


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Nguyen whose telephone number is (571) 272-7214. The examiner can normally be reached on M-F, 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steve Nguyen  
Examiner  
Art Unit 2138



  
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